

WHAT IS CLAIMED IS:

1. An in-plane switching mode liquid crystal display device, comprising:
a plurality of R (Red), G (Green), B (Blue) and W (White) pixels defined by a plurality of gate lines and a plurality of data lines;
a driving element in the pixel; and
at least one pair of electrodes disposed in the pixel to form a horizontal electric field,
wherein the R, G, B, and W pixels are arranged in a zigzag pattern in a data line direction, and each of R, G, B, and W pixels is arranged to be symmetric with respect to the gate line to adjacent R, G, B, and W pixels.
2. The device of claim 1, wherein the data line has at least one bent portion.
3. The device of claim 1, wherein the electrodes include:
a common electrode; and
a pixel electrode arranged to be substantially parallel with the common electrode.
4. The device of claim 3, wherein the common electrode and the pixel electrode have at least one bent portion.
5. The device of claim 1, further comprising:
a common line connected with a common electrode; and
a pixel electrode line connected with a pixel electrode in the pixel, the pixel electrode line overlapping a portion of the common line to form a storage capacitor.

6. The device of claim 1, wherein the driving element is a thin film transistor.

7. The device of claim 1, wherein the R, G, B, and W pixels are substantially parallelograms.

8. An in-plane switching mode liquid crystal display device, comprising:
a plurality of pixels defined by a plurality of gate lines and a plurality of data lines, the pixel including R (Red), G (Green), B (Blue), and W(White) subpixels;
a driving element disposed in each subpixel; and
at least one pair of electrodes disposed in each subpixel to form a horizontal electric field,
wherein the R, G, B, and W subpixels are arranged in a zigzag pattern in a data line direction, the subpixels of adjacent pixels being arranged in a different direction to compensate a main viewing angle of each of R, G, B, W subpixels.

9. The device of claim 8, wherein direction of the electrodes in each of R, G, B, and W subpixels is symmetric to that of the electrodes in adjacent R, G, B, and W subpixels with respect to the gate line.

10. An in-plane switching mode liquid crystal display device, comprising:
a first set of pixels of different colors, each of the pixels having a data line along a side thereof and a gate line along a side thereof, wherein one of the pixels is a white (W) pixel; and
a second set of pixels of different colors, each of the pixels having a data

line along a side thereof and a gate line along a side thereof, wherein one of the pixels is a white (W) pixel;

wherein the first set of pixels and the second set of pixels are adjacent to each other.

11. The in-plane switching mode liquid crystal display device 10, wherein the white pixel of the first set and the white pixel of the second set are not adjacent to each other.

12. The in-plane switching mode liquid crystal display device of claim 10, wherein the first set of pixels includes four pixels and the second set of pixels includes four pixels.

13. The in-plane switching mode liquid crystal display device of claim 12, wherein the first set of four pixels and the second set of four pixels are each arranged in a two by two matrix.

14. The in-plane switching mode liquid crystal display device 13, wherein the white pixel of the first set and the white pixel of the second set are not adjacent to each other.

15. The in-plane switching mode liquid crystal display device of claim 10, wherein the first set of pixels and the second set of pixels are each arranged in a row.

16. The in-plane switching mode liquid crystal display device of claim 12,

wherein the first set of four pixels and the second set of four pixels are each arranged in a row.

17. The in-plane switching mode liquid crystal display device of claim 16, wherein the white pixel of the first set and the white pixel of the second set are not adjacent to each other.

18. The in-plane switching liquid crystal display device of claim 12, wherein the arrangement of the four pixels in the first set is the same as the arrangement of the four pixels in the second set.

19. The in-plane switching liquid crystal display device of claim 10, wherein the data lines of the first set and the data lines of the second set have a bent portion.

20. The in-plane switching liquid crystal display device of claim 19, wherein the bent portion of the data lines of the first set and the bent portion of the data lines of the second set are symmetric with respect to an axis perpendicular to the gate line.

21. The in-plane switching liquid crystal display device of claim 20, wherein a dead space is formed between the first set and the second set.

22. The in-plane switching liquid crystal display device of claim 19, wherein the bent portion of the data lines of the first set and the bent portion of the data lines of the second set are the same direction.

23. The in-plane switching liquid crystal display device of claim 10, wherein the different colors include red, green, blue and white.

24. The in-plane switching liquid crystal display device of claim 23, wherein the first set of pixels includes four pixels and wherein the second set of pixels includes four pixels, and wherein the first set of four pixels and the second set of four pixels are each arranged in a two by two matrix.

25. The in-plane switching liquid crystal display device of claim 24, wherein the two by two matrices of the first set and the second set include an upper row and a lower row, respectively, and wherein the two colors in the upper row of the first set are the same as the two colors in the lower row of the second set.

26. The in-plane switching liquid crystal display device of claim 25, wherein the two colors in the upper row of the first set are arranged the same as the two colors in the lower row of the second set.

27. The in-plane switching liquid crystal display device of claim 13, wherein the two by two matrices of the first set and the second set include an upper row and a lower row, respectively, and wherein the two colors in the lower row of the first set are the same as the two colors in the upper row of the second set.

28. The in-plane switching liquid crystal display device of claim 27, wherein the two colors in the lower row of the first set are arranged in the same pattern as the two colors in the upper row of the second set.

29. An in-plane switching mode liquid crystal display device, comprising:

- a first set of pixels of different colors, each of the pixels having a data line along a side thereof and a gate line along a side thereof, wherein one of the pixels is a white (W) pixel;
- a second set of pixels of different colors, each of the pixels having a data line along a side thereof and a gate line along a side thereof, wherein one of the pixels is a white (W) pixel;
- a third set of pixels of different colors, each of the pixels having a data line along a side thereof and a gate line along a side thereof, wherein one of the pixels is a white (W) pixel; and
- a fourth set of pixels of different colors, each of the pixels having a data line along a side thereof and a gate line along a side thereof, wherein one of the pixels is a white (W) pixel;

wherein the first set of pixels and the second set of pixels are adjacent to each other and the third set of pixels and the fourth set of pixels are adjacent to each other and wherein the white pixels are not adjacent to each other.

30. The in-plane switching liquid crystal display device of claim 29, wherein the first set of pixels includes four pixels, the second set of pixels includes four pixels, the third set of pixels includes four pixels, and the fourth set of pixels includes four pixels and wherein the first to fourth sets of four pixels are each arranged in a two by two matrix.

31. The in-plane switching liquid crystal display device of claim 30, wherein the two by two matrices of the first set and the second set include an upper row and a lower

row, respectively, and wherein the two colors in the upper row of the first set are the same as the two colors in the lower row of the second set.

32. The in-plane switching liquid crystal display device of claim 31, wherein the two colors in the upper row of the first set are arranged the same as the two colors in the lower row of the second set.

33. The in-plane switching liquid crystal display device of claim 30, wherein the two by two matrices of the first set and the second set include an upper row and a lower row, respectively, and wherein the two colors in the lower row of the first set are the same as the two colors in the upper row of the second set.

34. The in-plane switching liquid crystal display device of claim 33, wherein the two colors in the lower row of the first set are arranged the same as the two colors in the upper row of the second set.

35. The in-plane switching liquid crystal display device of claim 30, wherein the two by two matrices of the first set and the third set include an upper row and a lower row, respectively, and wherein the two colors in the upper row of the first set are the same as the two colors in the upper row of the third set.

36. The in-plane switching liquid crystal display device of claim 35, wherein the two colors in the upper row of the first set are arranged to be opposite the arrangement of the two colors in the upper row of the third set.

37. The in-plane switching liquid crystal display device of claim 30, wherein the two by two matrices of the first set and the third set include an upper row and a lower row, respectively, and wherein the two colors in the lower row of the first set are the same as the two colors in the lower row of the third set.

38. The in-plane switching liquid crystal display device of claim 37, wherein the two colors in the lower row of the first set are arranged to be opposite the arrangement of the two colors in the lower row of the third set.

39. The in-plane switching liquid crystal display device of claim 30, wherein the two by two matrices of the second set and the fourth set include an upper row and a lower row, respectively, and wherein the two colors in the upper row of the second set are the same as the two colors in the upper row of the fourth set.

40. The in-plane switching liquid crystal display device of claim 39, wherein the two colors in the upper row of the second set are arranged to be opposite the arrangement of the two colors in the upper row of the fourth set.

41. The in-plane switching liquid crystal display device of claim 30, wherein the two by two matrices of the second set and the fourth set include an upper row and a lower row, respectively, and wherein the two colors in the lower row of the second set are the same as the two colors in the lower row of the fourth set.

42. The in-plane switching liquid crystal display device of claim 41, wherein the two colors in the lower row of the second set are arranged to be opposite the arrangement of the two colors in the lower row of the fourth set.